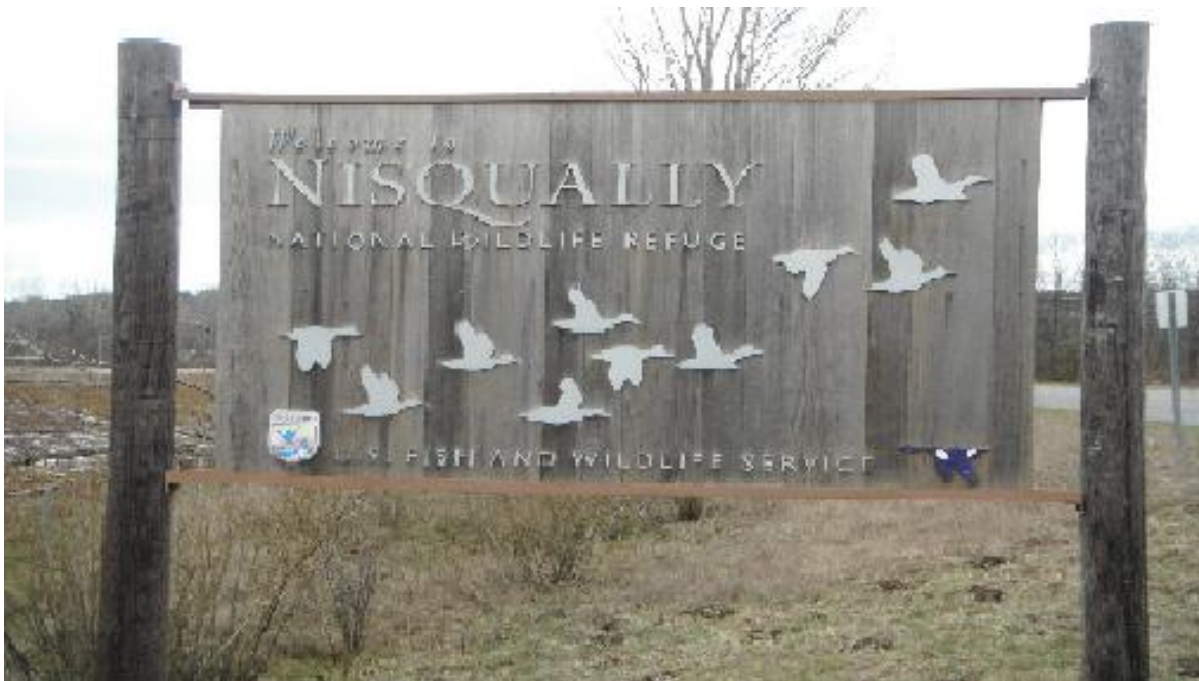
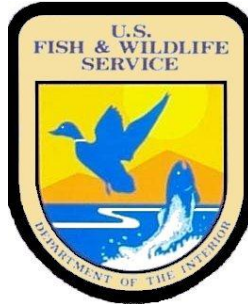


# **The Road Inventory of Nisqually National Wildlife Refuge Olympia, WA**



Prepared By:  
Federal Highway Administration  
Central Federal Lands Highway Division  
April 2013



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## INTRODUCTION

The Transportation Equity Act for the 21<sup>st</sup> Century (Public Law 105-178) created the Refuge Roads Program. Refuge roads are those public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government. Funds from the Highway Trust Fund are available for refuge roads and can be used by the station to pay the cost of:

- (a) Maintenance and improvements of refuge roads.
- (b) Maintenance and improvements of:
  - (1) Adjacent vehicle parking areas
  - (2) Provision for pedestrians and bicycles and
  - (3) Construction and reconstruction of roadside rest areas that are located in or adjacent to wildlife refuges
- (c) Administrative costs associated with such maintenance and improvements.

The funds available for refuge roads are to be disbursed based on the relative needs of the various refuges in the National Wildlife Refuge System, and taking into consideration:

- (a) The comprehensive conservation plan for each refuge;
- (b) The need for access as identified through land use planning; and
- (c) The impact of land use planning on existing transportation facilities.

To determine the relative needs of the U.S. Fish and Wildlife Service, the Federal Highway Administration (FHWA) was asked to inventory all public access roads and parking lots and provide a condition assessment of each. In 2008 the inventory was expanded to include administrative (service use only) roads and parking lots. An FHWA representative meets with refuge personnel to identify route segments and assign route numbers and functional classifications (See Appendix) for each route. All roads and parking lots are mapped using Trimble GPS units and visually assessed for condition using the RSL method of evaluation developed at Utah State University (See Appendix). Culverts, Gates, Guardrails and Low Water Crossings are also mapped and inspected for any obvious defects.

An estimate is provided, in year 2008 dollars, based on the condition determined by the rating system. Estimates are based upon data and location factors from the 2008 RS Means Heavy Construction Cost Data 22<sup>nd</sup> Annual Edition. Cost estimates should be evaluated on a case-by-case basis when being used for programming purposes.

Native Surfaced roads and parking lots already inventoried will not be re-inventoried and will not appear individually in report chapters 5, 6 and 8. Mileages and areas of native surfaced roads and parking lots will still appear in all summaries in the report and will remain in the road inventory database. In addition to this report, the FHWA will furnish the condition ratings of each route and segment to the Fish and Wildlife Service in a Microsoft Access database so the data can be included in their Real Property Inventory.

# Nisqually NWR - 13530 Summaries

## Route Miles and Percentages by Functional Class and Condition

Condition Rating (Based on RSL)\*

F. C.	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
I	0.00	0.0%	0.00	0.0%	0.63	100.0%	0.00	0.0%	0.00	0.0%	0.63
II	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
III	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
IV	0.04	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.04
V	1.55	26.3%	4.03	68.4%	0.31	5.3%	0.00	0.0%	0.00	0.0%	5.89
<b>Totals</b>	<b>1.59</b>	<b>24.2%</b>	<b>4.03</b>	<b>61.4%</b>	<b>0.94</b>	<b>14.3%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>6.56</b>

\*For a description of condition ratings for the various surface types see the Appendix.

## Route Miles and Percentages by Surface Type and Condition

Paved Condition Rating [Condition(RSL)]

Surface	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
AS	0.04	6.0%	0.00	0.0%	0.63	94.0%	0.00	0.0%	0.00	0.0%	0.67
CO	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
<b>Totals</b>	<b>0.04</b>	<b>6.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.63</b>	<b>94.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.67</b>

Unpaved Condition Rating [Condition(RSL)]

Surface	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
GR	1.55	27.0%	3.89	67.7%	0.31	5.4%	0.00	0.0%	0.00	0.0%	5.75
NA	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
PR	0.00	0.0%	0.14	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.14
<b>Totals</b>	<b>1.55</b>	<b>26.3%</b>	<b>4.03</b>	<b>68.4%</b>	<b>0.31</b>	<b>5.3%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>5.89</b>

## Square Footage (Parking Areas)

Condition Rating

Surface	Excellent		Good		Fair		Poor		Failed		Total SQ FT
	SQ FT	%	SQ FT	%	SQ FT	%	SQ FT	%	SQ FT	%	
AS	0	0.0%	58,358	100.0%	0	0.0%	0	0.0%	0	0.0%	58,358
CO	689	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	689
GR	0	0.0%	39,406	100.0%	0	0.0%	0	0.0%	0	0.0%	39,406
NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
PR	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
<b>Totals</b>	<b>689</b>	<b>0.7%</b>	<b>97,764</b>	<b>99.3%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>98,453</b>

## Nisqually NWR - 13530 Summaries

### Route Miles and Percentages by Use Type and Condition

Road Condition Rating: Public/Administrative Use

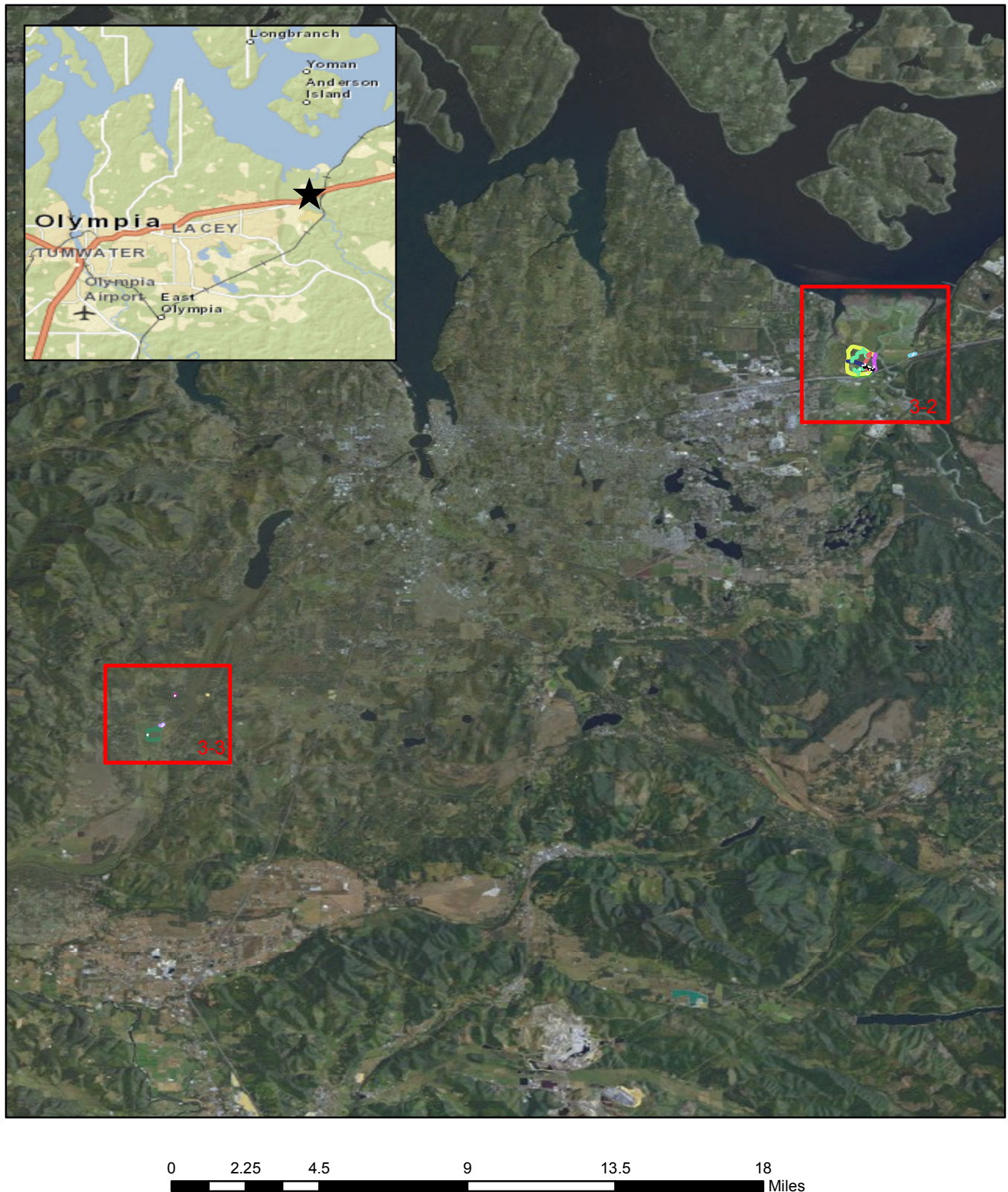
USE TYPE	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
Public (FC I-III)	0.00	0.0%	0.00	0.0%	0.63	100.0%	0.00	0.0%	0.00	0.0%	0.63
Admin (FC IV-V)	1.59	26.8%	4.03	68.0%	0.31	5.2%	0.00	0.0%	0.00	0.0%	5.93
Totals	1.59	24.2%	4.03	61.4%	0.94	14.3%	0.00	0.0%	0.00	0.0%	6.56

Parking Condition Rating: Public/Administrative Use

USE TYPE	Excellent		Good		Fair		Poor		Failed		Total Sq Ft
	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	
Public	689	1.2%	58358	98.8%	0	0.0%	0	0.0%	0	0.0%	59,047
Admin	0	0.0%	39406	100.0%	0	0.0%	0	0.0%	0	0.0%	39,406
Totals	689	0.7%	97,764	99.3%	0	0.0%	0	0.0%	0	0.0%	98,453

# Nisqually National Wildlife Refuge

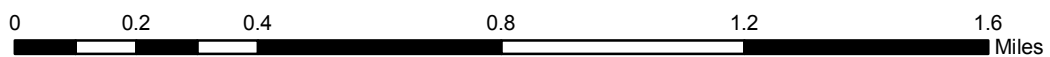
## ROUTE LOCATION MAP





# Nisqually National Wildlife Refuge

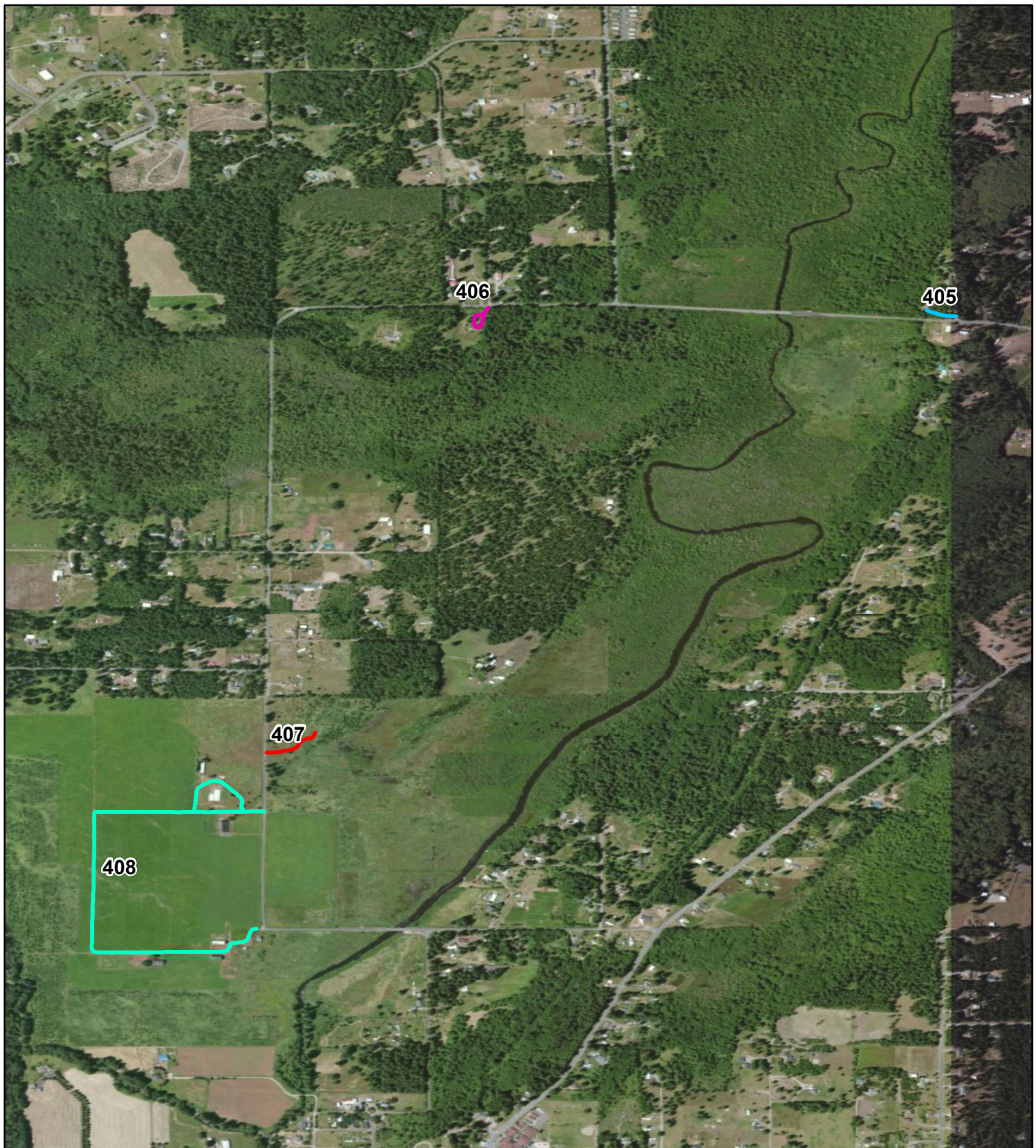
## ROUTE LOCATION MAP





# Nisqually National Wildlife Refuge

## ROUTE LOCATION MAP



0 0.2 0.4 0.8 1.2 1.6 Miles

## Nisqually NWR - 13530

### Route Identification List

Shading Color Key:

White = Paved Routes
Yellow = Unpaved Routes

RTE #	Asset Number	ROUTE NAME	RTE MI	ROUTE DESCRIPTION	PAVED MI	UN-PAVED MI	LANES	FC
010	10003521	Brown Farm Road	0.63	From Nisqually Cut-Off Road SE to Visitor Parking West (Route 901)	0.63	-	2	1
300	10003486	Maintenance Shop Road	0.04	From Brown Farm Road (Route 010) to Maintenance Shop Parking (Route 800)	0.04	-	2	4
400	-	New Barn Farm Dike Road	1.86	From Brown Farm Road (Route 010) to Old Barn Farm Dike Road (Route 401)	-	1.86	1	5
401	10065128	Old Barn Farm Dike Road	0.52	From Maintenance Shop Parking (Route 800) to end of route	-	0.52	1	5
402	10003505	Road to Twin Barns	0.68	From New Barn Farm Dike Road (Route 400) to Barn Farm Road (Route 010)	-	0.68	1	5
403	10065128	Interior Dike Road	1.11	From Road to Twin Barns (Route 402) to New Barn Farm Dike Road (Route 400)	-	1.11	1	5
404	10065128	McAllister Cross Dike Road	0.36	From Road to Twin Barns (Route 402) to New Barn Farm Dike Road (Route 400)	-	0.36	1	5
405	10065128	Tract 547 Driveway	0.05	From 110th Avenue to end of route	-	0.05	1	5
406	10065128	Quarters # 1 Driveway	0.09	From 110th Avenue to end of route	-	0.09	1	5
407	10065128	Tract 574 Driveway	0.09	From Endicott Road to end of route	-	0.09	1	5
408	10065128	Loop Road	0.98	From Endicott Road to end of loop	-	0.98	1	5
409	10054711	Eastside Access Road	0.15	From Mounts Road to problem area	-	0.15	1	5



**Nisqually NWR - 13530**  
**Route Identification List (Parking)**

Shading Color Key:

White = Paved Routes
Green = Unpaved Routes

Route #	Asset Number	ROUTE NAME	Area (Sq Ft)	ROUTE DESCRIPTION	Surface Type
800	10003522	Maintenance Shop Parking	39,406	From Maintenance Shop Road (Route 300)	Gravel
900	10003520	Visitor Parking East	21,157	From Brown Farm Road (Route 010)	Asphalt
901	10003520	Visitor Parking West	37,201	From Brown Farm Road (Route 010)	Asphalt
902	-	Education Center Parking A	357	From Visitor Parking East (Route 900)	Concrete
903	-	Education Center Parking B	332	From Visitor Parking East (Route 900)	Concrete

# CHANGES TO THE FISH AND WILDLIFE SERVICE ROAD INVENTORY REPORT

Nisqually NWR

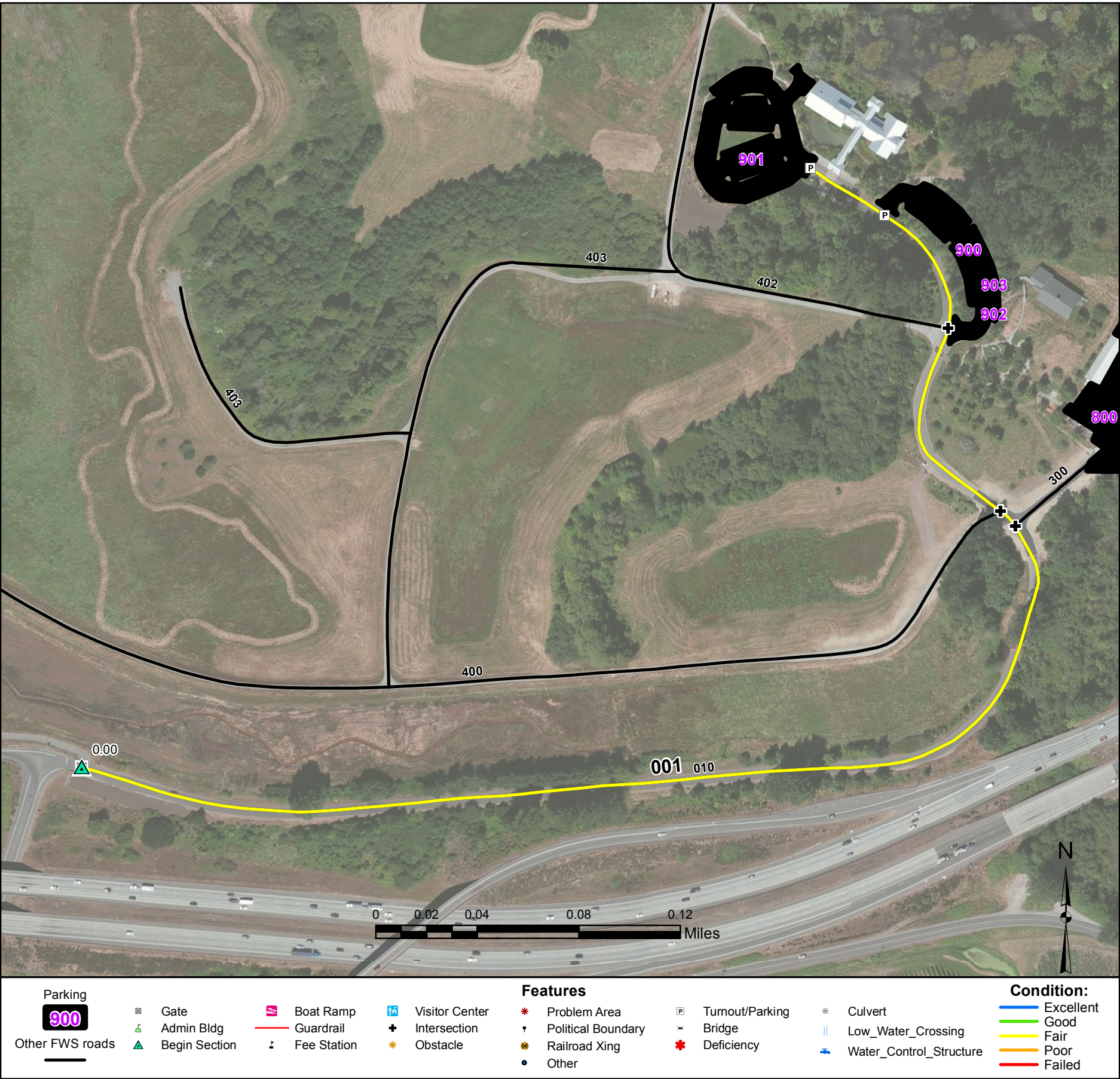
Routes added to previous inventory:		
Rte #	Rte Name	Reason For Addition
400	New Barn Farm Dike Road	New Administrative Route
401	Old Barn Farm Dike Road	New Administrative Route
403	Interior Dike Road	New Administrative Route
404	McAllister Cross Dike Road	New Administrative Route
405	Tract 547 Driveway	New Administrative Route
406	Quarters # 1 Driveway	New Administrative Route
407	Tract 574 Driveway	New Administrative Route
408	Loop Road	New Administrative Route
409	Eastside Access Road	New Administrative Route
800	Maintenance Shop Parking	New Administrative Route
902	Education Center Parking A	New Public Route
903	Education Center Parking B	New Public Route

Routes removed from previous inventory:		
Rte #	Rte Name	Reason For Removal

Routes modified from previous inventory:			
Rte #	Rte Name	Type of Modification	Description of Modification
900	Visitor Parking East	New Geometry	

Comments:

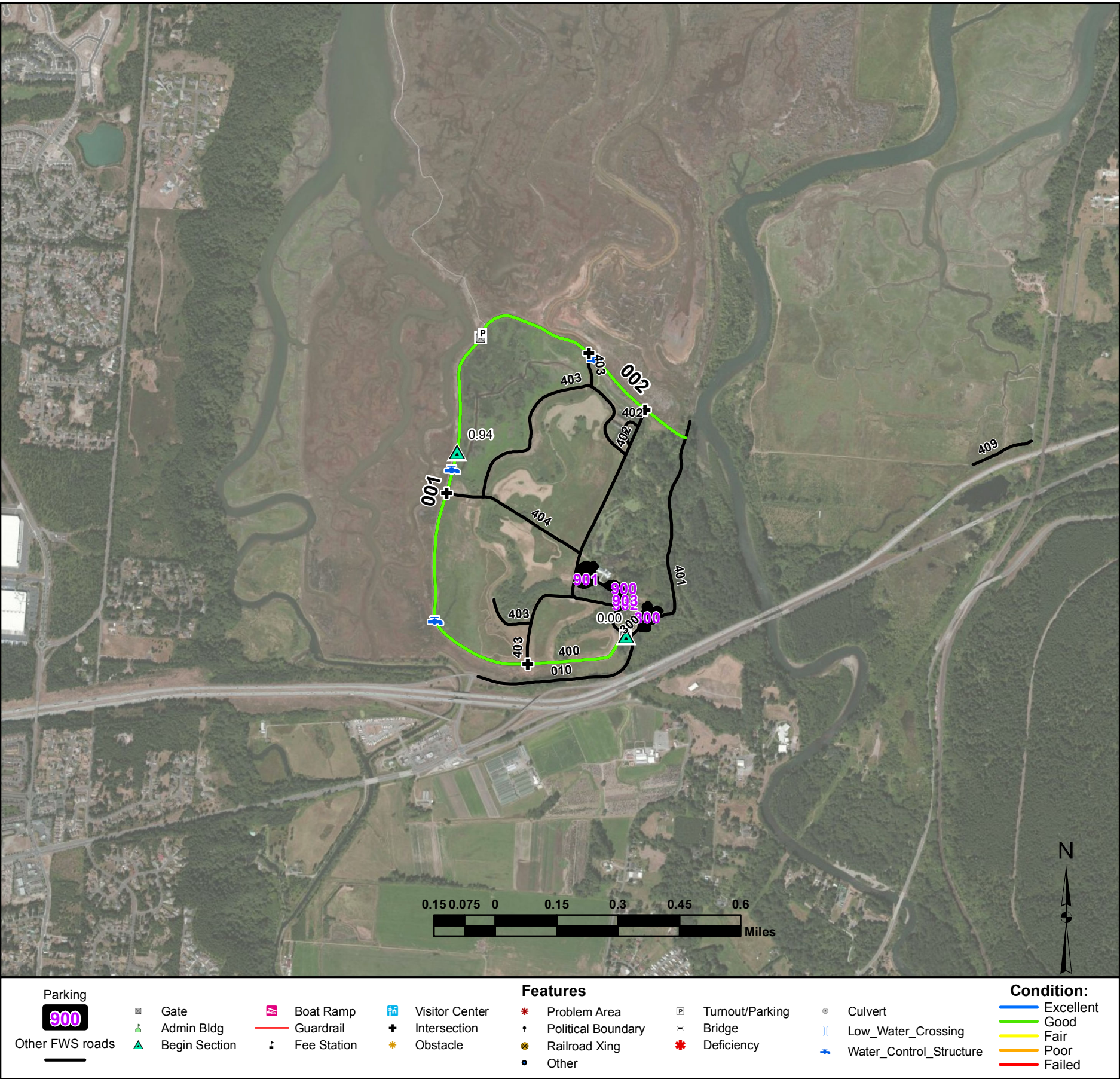












New Barn Farm Dike Road

From Brown Farm Road (Route 010) to Old Barn Farm Dike Road (Route 401)

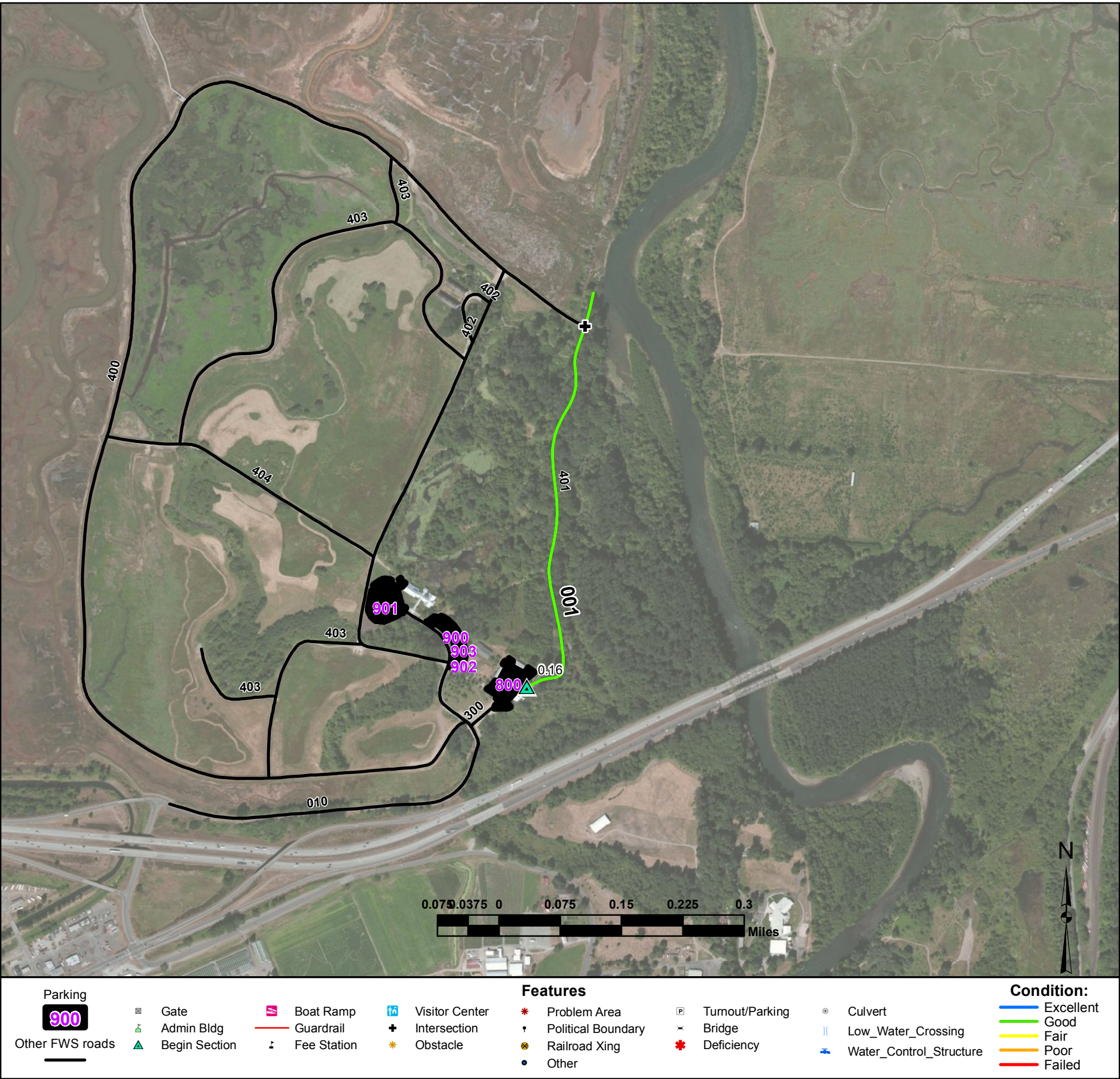
Route Number: 400

Total Route Mileage: 1.86

Asset Number	-	-			
Section Number	001	002			
Section Length (miles)	0.94	0.92			
Inspection Date	02-26-2013	02-26-2013			
Surface Type	Gravel	Gravel			
Number of Lanes	1	1			
Roadway Width (feet)	14	14			
Condition	Good	Good			
Remaining Service Life (years)	7	5			
Estimated Cost to Repair	\$1,800	\$1,700			
Current Replacement Value	\$749,400	\$733,400			

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Gate	001-0.01						
Intersection	001-0.3						
Water Control Structure	001-0.59						
Intersection	001-0.85						
Water Control Structure	001-0.9						
Begin Section	002-0.94						
Gate	002-1.18						
Turnout/Parking	002-1.19						
Intersection	002-1.53						
Water Control Structure	002-1.55						
Intersection	002-1.73						





Problem Area

Political Boundary

Railroad Xing

Other

Turnout/Parking

Bridge

Deficiency

Culvert

Low\_Water\_Crossing

Water\_Control\_Structure

Excellent

Good

Fair

Poor

Failed

Old Barn Farm Dike Road

From Maintenance Shop Parking (Route 800) to end of route

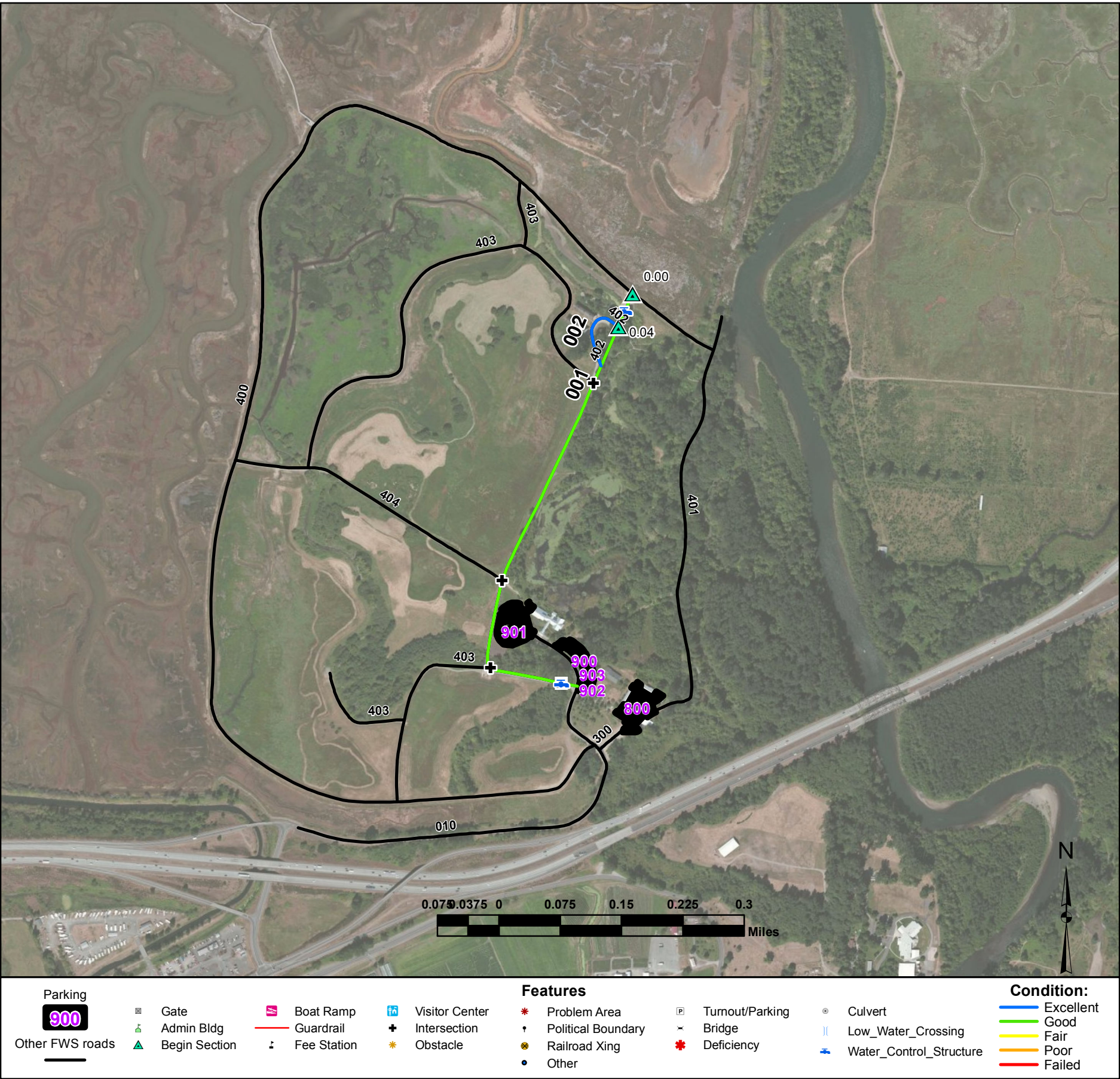
Route Number: 401

Total Route Mileage: 0.52

<div>Asset Number</div> <div>Section Number</div> <div>Section Length (miles)</div> <div>Inspection Date</div> <div>Surface Type</div> <div>Number of Lanes</div> <div>Roadway Width (feet)</div> <div>Condition</div> <div>Remaining Service Life (years)</div> <div>Estimated Cost to Repair</div> <div>Current Replacement Value</div>	<div>10065128</div> <div>001</div> <div>0.52</div> <div>02-26-2013</div> <div>Gravel</div> <div>1</div> <div>14</div> <div>Good</div> <div>5</div> <div>\$1,000</div> <div>\$414,500</div>				
---	--	--	--	--	--

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.16						
Intersection	001-0.48						





### Road to Twin Barns

From New Barn Farm Dike Road (Route 400) to Barn Farm Road (Route 010)

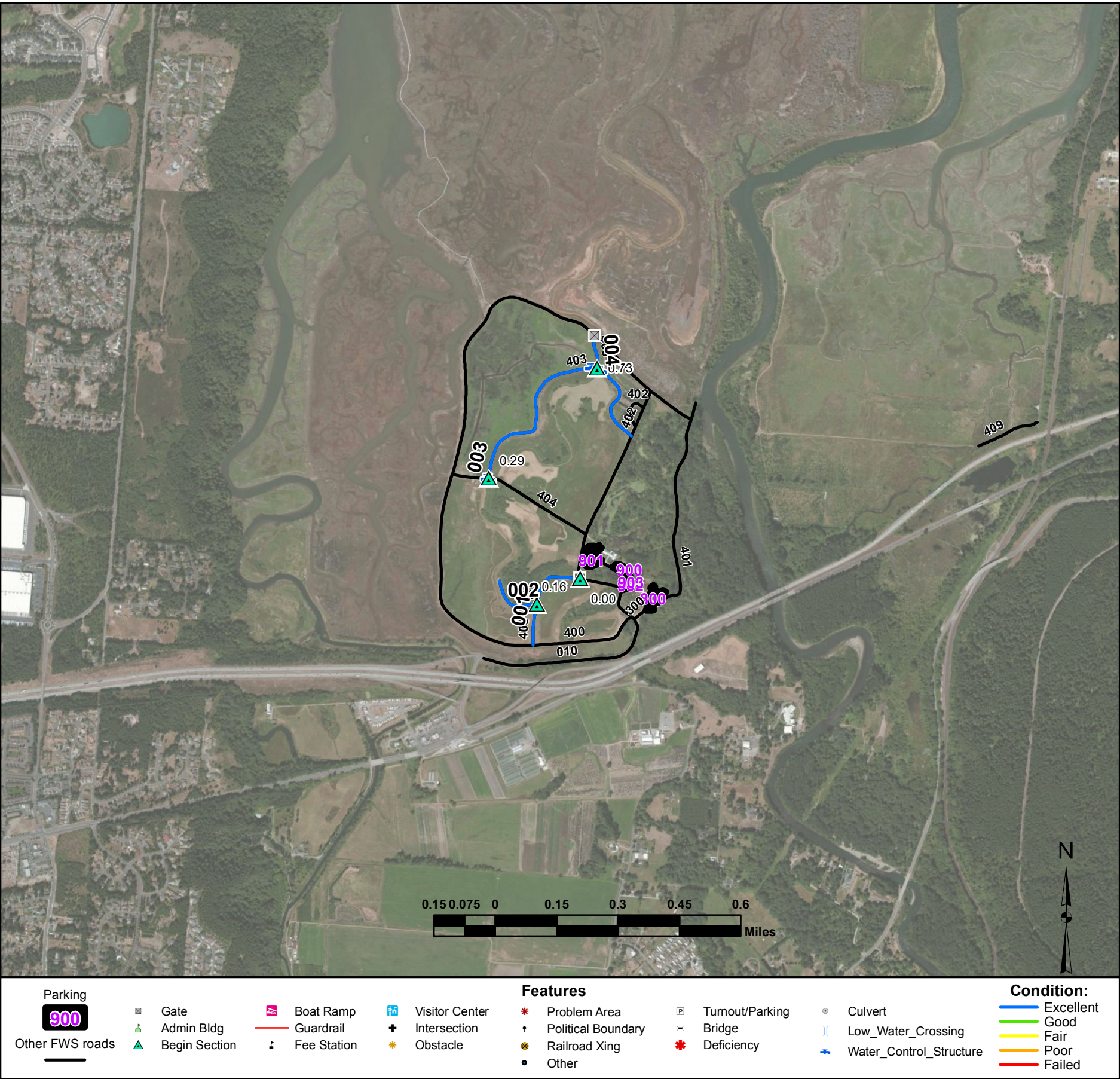
Route Number: 402

Total Route Mileage: 0.68

<b>Asset Number</b>	10003505	10003505			
<b>Section Number</b>	001	002			
<b>Section Length (miles)</b>	0.60	0.08			
<b>Inspection Date</b>	02-26-2013	02-26-2013			
<b>Surface Type</b>	Gravel	Gravel			
<b>Number of Lanes</b>	1	2			
<b>Roadway Width (feet)</b>	14	20			
<b>Condition</b>	Good	Excellent			
<b>Remaining Service Life (years)</b>	7	9			
<b>Estimated Cost to Repair</b>	\$1,100	\$0			
<b>Current Replacement Value</b>	\$478,300	\$63,800			

<b>Features</b>	<b>Mile Post</b>	<b>Features</b>	<b>Mile Post</b>	<b>Features</b>	<b>Mile Post</b>	<b>Features</b>	<b>Mile Post</b>
Begin Section	001-0.0						
Water Control Structure	001-0.02						
Intersection	001-0.11						
Intersection	001-0.36						
Intersection	001-0.46						
Water Control Structure	001-0.57						
Gate	001-0.57						
Begin Section	002-0.04						





Interior Dike Road

From Road to Twin Barns (Route 402) to New Barn Farm Dike Road (Route 400)

Route Number: 403

Total Route Mileage: 1.11

Asset Number	10065128	10065128	10065128	10065128	
Section Number	001	002	003	004	
Section Length (miles)	0.25	0.13	0.66	0.07	
Inspection Date	02-26-2013	02-26-2013	02-26-2013	02-26-2013	
Surface Type	Gravel	Gravel	Gravel	Gravel	
Number of Lanes	1	1	1	1	
Roadway Width (feet)	12	12	12	12	
Condition	Excellent	Excellent	Excellent	Excellent	
Remaining Service Life (years)	8	8	8	10	
Estimated Cost to Repair	\$0	\$0	\$0	\$0	
Current Replacement Value	\$199,300	\$103,600	\$526,100	\$55,800	

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Gate	001-0.0						
Begin Section	002-0.16						
Begin Section	003-0.29						
Water Control Structure	003-0.29						
Water Control Structure	003-0.72						
Water Control Structure	003-0.74						
Begin Section	004-0.73						
Gate	004-0.8						





**Parking**  
 900  
 Other FWS roads

**Gate**  
 Gate  
 Admin Bldg  
 Begin Section

**Boat Ramp**  
 Boat Ramp  
 Guardrail  
 Fee Station

**Visitor Center**  
 Visitor Center  
 Intersection  
 Obstacle

**Features**  
 Problem Area  
 Political Boundary  
 Railroad Xing  
 Other

**Turnout/Parking**  
 Turnout/Parking  
 Bridge  
 Deficiency

**Culvert**  
 Culvert  
 Low\_Water\_Crossing  
 Water\_Control\_Structure

**Condition:**  
 Excellent  
 Good  
 Fair  
 Poor  
 Failed

## McAllister Cross Dike Road

From Road to Twin Barns (Route 402) to New Barn Farm Dike Road (Route 400)

Route Number: 404

Total Route Mileage: 0.36

<b>Asset Number</b>	10065128				
<b>Section Number</b>	001				
<b>Section Length (miles)</b>	0.36				
<b>Inspection Date</b>	02-26-2013				
<b>Surface Type</b>	Gravel				
<b>Number of Lanes</b>	1				
<b>Roadway Width (feet)</b>	12				
<b>Condition</b>	Excellent				
<b>Remaining Service Life (years)</b>	8				
<b>Estimated Cost to Repair</b>	\$0				
<b>Current Replacement Value</b>	\$287,000				

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Gate	001-0.0						
Water Control Structure	001-0.25						
Intersection	001-0.26						
Water Control Structure	001-0.3						

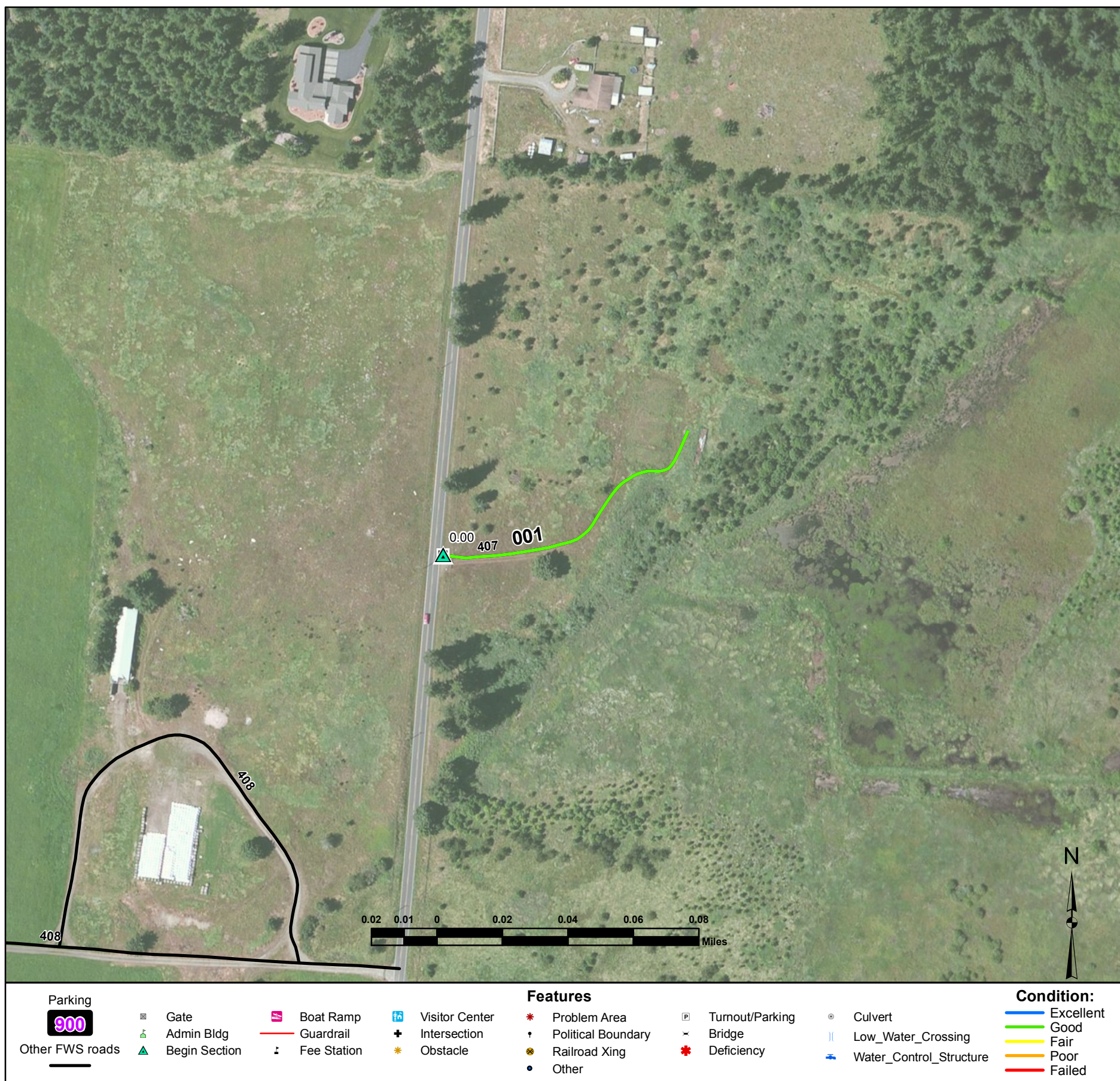












## Tract 574 Driveway

### From Endicott Road to end of route

Route Number: 407

Total Route Mileage: 0.09

<b>Asset Number</b>	10065128				
<b>Section Number</b>	001				
<b>Section Length (miles)</b>	0.09				
<b>Inspection Date</b>	02-26-2013				
<b>Surface Type</b>	Primitive				
<b>Number of Lanes</b>	1				
<b>Roadway Width (feet)</b>	10				
<b>Condition</b>	Good				
<b>Remaining Service Life (years)</b>	5				
<b>Estimated Cost to Repair</b>	\$0				
<b>Current Replacement Value</b>	\$0				

<b>Features</b> Begin Section Gate	<b>Mile Post</b> 001-0.0 001-0.0	<b>Features</b>	<b>Mile Post</b>	<b>Features</b>	<b>Mile Post</b>	<b>Features</b>	<b>Mile Post</b>
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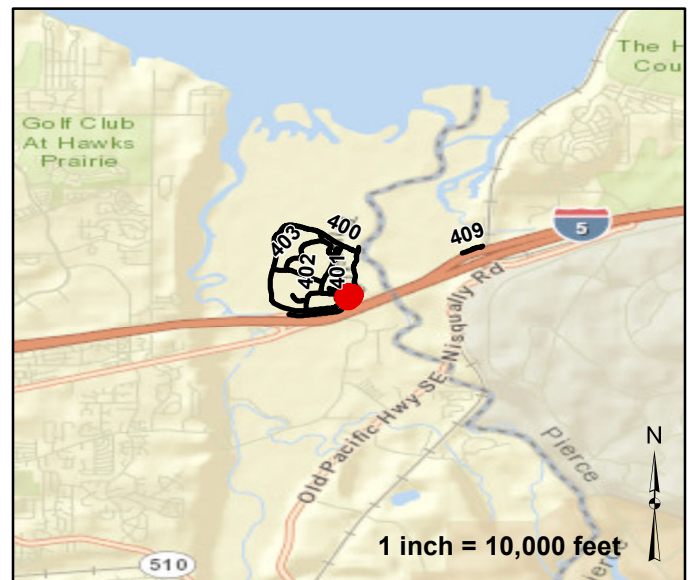






**Route Number: 800**  
**Maintenance Shop Parking**  
**From Maintenance Shop Road (Route 300)**

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10003522	39406	25	Good	Gravel	\$6,800	02-26-2013	\$225,600



Parking		Features				Condition:	
Other FWS roads							

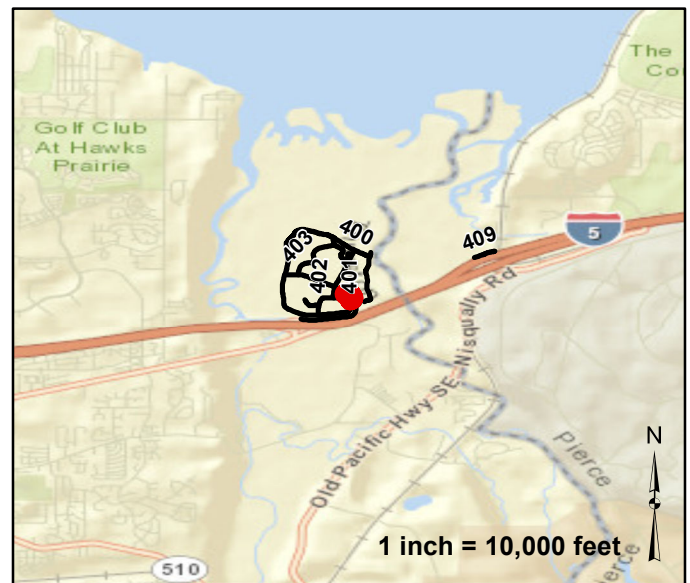
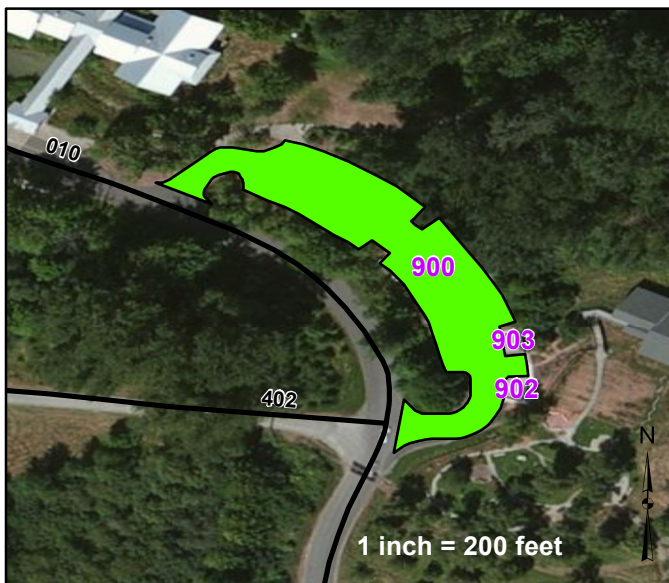


## Route Number: 900

### Visitor Parking East

From Brown Farm Road (Route 010)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10003520	21157	47	Good	Asphalt	\$4,600	02-26-2013	\$223,200



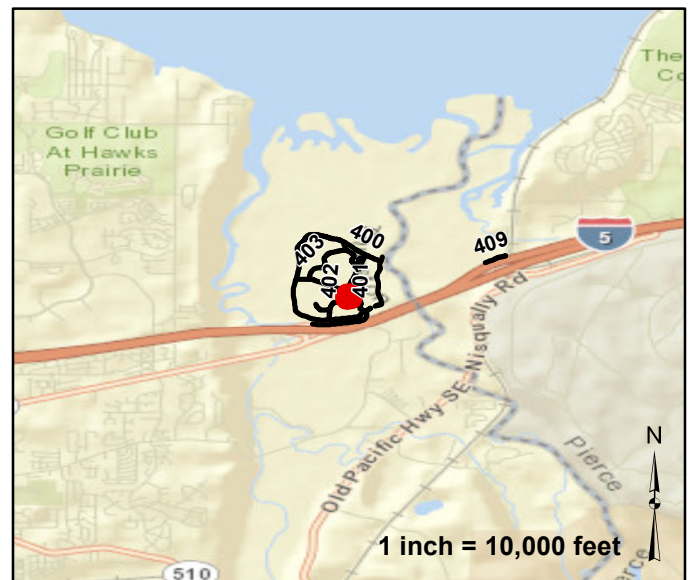
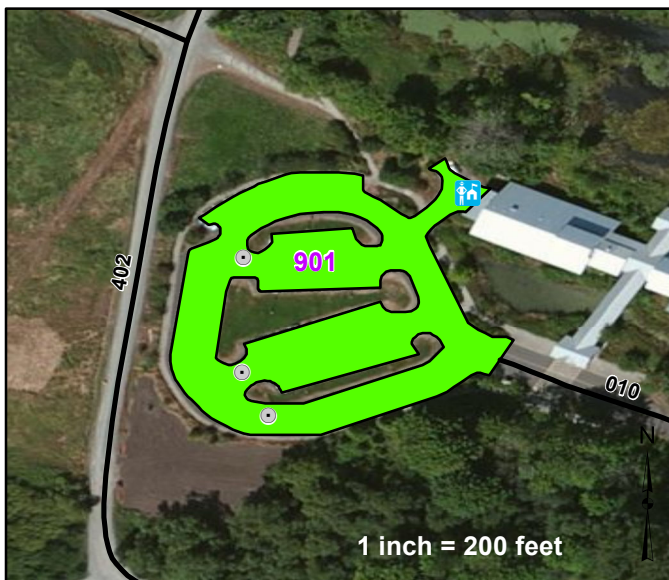
Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads		Admin Bldg		Guardrail		Other	Good
		Begin Section		Fee Station		Problem Area	Fair
						Culvert	Poor
						Low_Water_Crossing	Failed
						Water_Control_Structure	

# Route Number: 901

## Visitor Parking West

From Brown Farm Road (Route 010)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10003520	37201	51	Good	Asphalt	\$8,000	02-26-2013	\$390,200

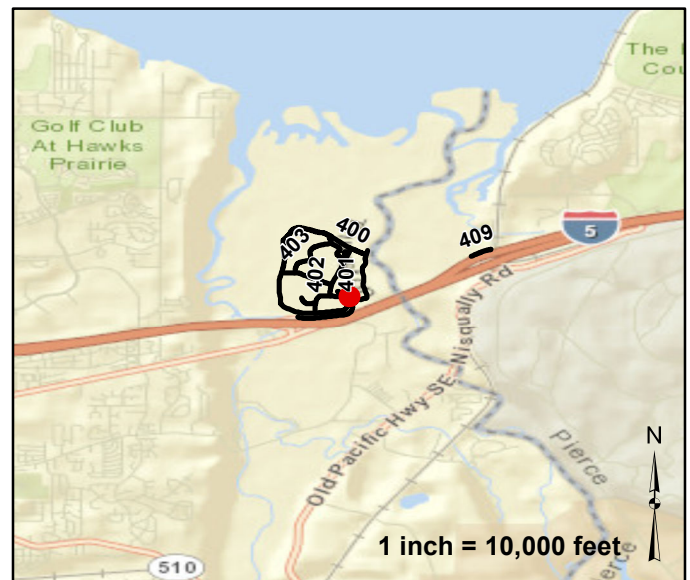


Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads		Admin Bldg		Guardrail		Other	Good
		Begin Section		Fee Station		Problem Area	Fair
						Culvert	Poor
						Low_Water_Crossing	Failed
						Water_Control_Structure	



**Route Number: 902**  
**Education Center Parking A**  
 From Visitor Parking East (Route 900)

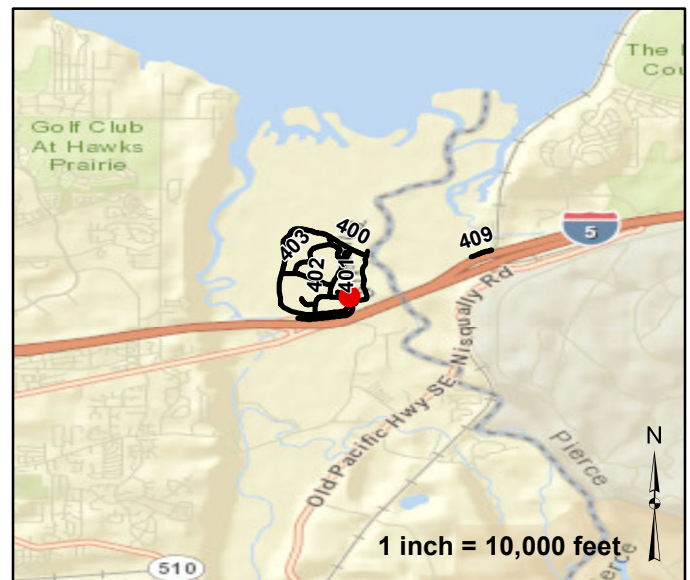
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
-	357	2	Excellent	Concrete	\$0	02-26-2013	\$4,500



Parking		Features				Condition:	
	Gate						
Other FWS roads	Admin Bldg						
	Begin Section						

**Route Number: 903**  
**Education Center Parking B**  
 From Visitor Parking East (Route 900)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
-	332	2	Excellent	Concrete	\$0	02-26-2013	\$4,200



Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads			Guardrail		Other		Good
			Fee Station		Problem Area		Fair
					Culvert		Poor
					Low_Water_Crossing		Failed
					Water_Control_Structure		

Nisqually Bridge Inventory					
Rte #	Milepost	NBIS #	Sufficiency Rating	Functionally Obsolete	Structurally Deficient
No Bridges to Report					



## ROUTE: 010

## Features Photographs



Photo: NISQ\_C4\_0390 Route: 010-001-0.0  
Begin Section



Photo: NISQ\_C4\_0391 Route: 010-001-0.0  
Metal Open Rail Gate Electric



## ROUTE: 300

## Features Photographs



Photo: NISQ\_C4\_0331 Route: 300-001-0.0  
Begin Section



## ROUTE: 400

## Features Photographs



Photo: NISQ\_C4\_0332 Route: 400-001-0.0  
Begin Section



Photo: NISQ\_C4\_0333 Route: 400-001-0.01  
Metal Open Rail Gate



Photo: NISQ\_C4\_0334 Route: 400-001-0.59  
Metal WCS Flashboard Riser 70ft long 36in dia. 10ft deep



Photo: NISQ\_C4\_0335 Route: 400-001-0.59  
Metal WCS Flashboard Riser 70ft long 36in dia. 10ft deep



Photo: NISQ\_C4\_0336 Route: 400-001-0.9  
Metal WCS Flashboard Riser 70ft long 36in dia. 10ft deep



Photo: NISQ\_C4\_0337 Route: 400-001-0.9  
Metal WCS Flashboard Riser 70ft long 36in dia. 10ft deep  
8-003



## ROUTE: 400

## Features Photographs



Photo: NISQ\_C4\_0338 Route: 400-002-0.94  
Begin Section



Photo: NISQ\_C4\_0339 Route: 400-002-1.18  
Metal Open Rail Gate



Photo: NISQ\_C4\_0340 Route: 400-002-1.55  
Metal WCS Flashboard Riser 100ft long 36in dia. 6ft deep



Photo: NISQ\_C4\_0341 Route: 400-002-1.55  
Metal WCS Flashboard Riser 100ft long 36in dia. 6ft deep

## ROUTE: 401

## Features Photographs



Photo: NISQ\_C4\_0343 Route: 401-001-0.16  
Begin Section



## ROUTE: 402

## Features Photographs



Photo: NISQ\_C4\_0344 Route: 402-001-0.0  
Begin Section



Photo: NISQ\_C4\_0345 Route: 402-001-0.02  
Metal WCS Flashboard Riser 40ft long 24in dia. 4ft deep



Photo: NISQ\_C4\_0346 Route: 402-001-0.02  
Metal WCS Flashboard Riser 40ft long 24in dia. 4ft deep



Photo: NISQ\_C4\_0349 Route: 402-001-0.57  
Metal Open Rail Gate



Photo: NISQ\_C4\_0347 Route: 402-001-0.57  
Plastic WCS Flashboard Riser 45ft long 24in dia. 2ft deep



Photo: NISQ\_C4\_0348 Route: 402-001-0.57  
Plastic WCS Flashboard Riser 45ft long 24in dia. 2ft deep  
8-006



## ROUTE: 402

## Features Photographs



Photo: NISQ\_C4\_0368 Route: 402-002-0.04  
Begin Section



## ROUTE: 403

## Features Photographs



Photo: NISQ\_C4\_0350 Route: 403-001-0.0  
Begin Section



Photo: NISQ\_C4\_0351 Route: 403-001-0.0  
Metal Open Rail Gate



Photo: NISQ\_C4\_0352 Route: 403-002-0.16  
Begin Section



Photo: NISQ\_C4\_0359 Route: 403-003-0.29  
Begin Section



Photo: NISQ\_C4\_0360 Route: 403-003-0.29  
Plastic WCS Flashboard Riser 40ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0361 Route: 403-003-0.29  
Plastic WCS Flashboard Riser 40ft long 24in dia. 3ft deep  
8-008



## ROUTE: 403

## Features Photographs



Photo: NISQ\_C4\_0362 Route: 403-003-0.72  
Plastic WCS Flashboard Riser 45ft long 24in dia. 4ft deep



Photo: NISQ\_C4\_0363 Route: 403-003-0.72  
Plastic WCS Flashboard Riser 45ft long 24in dia. 4ft deep



Photo: NISQ\_C4\_0364 Route: 403-003-0.74  
Plastic WCS Flashboard Riser 60ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0365 Route: 403-003-0.74  
Plastic WCS Flashboard Riser 60ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0366 Route: 403-004-0.73  
Begin Section



Photo: NISQ\_C4\_0367 Route: 403-004-0.8  
Metal Open Rail Gate



## ROUTE: 404

## Features Photographs



Photo: NISQ\_C4\_0353 Route: 404-001-0.0  
Begin Section



Photo: NISQ\_C4\_0354 Route: 404-001-0.0  
Metal Open Rail Gate



Photo: NISQ\_C4\_0355 Route: 404-001-0.25  
Metal WCS Flashboard Riser 20ft long 24in dia. 2ft deep



Photo: NISQ\_C4\_0356 Route: 404-001-0.25  
Metal WCS Flashboard Riser 20ft long 24in dia. 2ft deep



Photo: NISQ\_C4\_0357 Route: 404-001-0.3  
Plastic WCS Flashboard Riser 40ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0358 Route: 404-001-0.3  
Plastic WCS Flashboard Riser 40ft long 24in dia. 3ft deep  
8-010



## ROUTE: 405

## Features Photographs



Photo: NISQ\_C4\_0369 Route: 405-001-0.0  
Begin Section



Photo: NISQ\_C4\_0370 Route: 405-001-0.0  
Metal Cable Gate



## ROUTE: 406

## Features Photographs



Photo: NISQ\_C4\_0371 Route: 406-001-0.0  
Begin Section



Photo: NISQ\_C4\_0372 Route: 406-001-0.0  
Metal Open Rail Gate

## ROUTE: 407

## Features Photographs



Photo: NISQ\_C4\_0373 Route: 407-001-0.0  
Begin Section



Photo: NISQ\_C4\_0374 Route: 407-001-0.0  
Metal Open Rail Gate



## ROUTE: 408

## Features Photographs



Photo: NISQ\_C4\_0375 Route: 408-001-0.0  
Begin Section



Photo: NISQ\_C4\_0376 Route: 408-001-0.0  
Metal Open Rail Gate



Photo: NISQ\_C4\_0377 Route: 408-001-0.82  
Metal Open Rail Gate



Photo: NISQ\_C4\_0378 Route: 408-002-0.03  
Begin Section



## ROUTE: 409

## Features Photographs



Photo: NISQ\_C4\_0379 Route: 409-001-0.0  
Begin Section



Photo: NISQ\_C4\_0380 Route: 409-001-0.0  
Metal Open Rail Gate



Photo: NISQ\_C4\_0381 Route: 409-001-0.06  
Plastic Culvert 50ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0382 Route: 409-001-0.06  
Plastic Culvert 50ft long 24in dia. 3ft deep



Photo: NISQ\_C4\_0383 Route: 409-001-0.15  
Obstacle Road flooded, could not continue



## ROUTE: 800

## Features Photographs



Photo: NISQ\_C4\_0326 Route: 800  
Metal Chain Link Gate



Photo: NISQ\_C4\_0327 Route: 800  
Metal Chain Link Gate



Photo: NISQ\_C4\_0328 Route: 800  
Metal Chain Link Gate



## ROUTE: 901

## Features Photographs



Photo: NISQ\_C4\_0314 Route: 901  
Plastic Culvert 45ft long 12in dia. 1ft deep



Photo: NISQ\_C4\_0315 Route: 901  
Plastic Culvert 45ft long 12in dia. 1ft deep



Photo: NISQ\_C4\_0316 Route: 901  
Plastic Culvert 45ft long 12in dia. 1ft deep



Photo: NISQ\_C4\_0317 Route: 901  
Plastic Culvert 45ft long 12in dia. 1ft deep



Photo: NISQ\_C4\_0318 Route: 901  
Plastic Culvert 70ft long 12in dia. 1ft deep



Photo: NISQ\_C4\_0319 Route: 901  
Plastic Culvert 70ft long 12in dia. 1ft deep



### Accident Summary

Number of Accidents Reported	Timespan of Accidents	Injuries	Fatalities
0	No Accidents to Report	0	0



## APPENDIX

<b>TABLE 1 - GENERAL FWS ROAD FUNCTIONAL CLASSIFICATION</b>	
<b>Class I</b>	Principal Refuge Road (Public Roads) - Routes that constitute the main access route, main auto tour route, or thoroughfare for refuge visitors. These routes are accessible by 2WD vehicles. Routes are numbered from 10 to 99.
<b>Class II</b>	Connector Refuge Road (Public Roads) - Routes that provide circulation within the refuge. These routes can also provide access to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, education centers, etc. These routes are accessible by 2WD vehicles. Routes are numbered from 100 to 199.
<b>Class III</b>	Special Purpose Refuge Road (Public Roads) - Roads that provide circulation within special use areas such as campgrounds or public concessionaire facilities or access to remote areas of the refuge. These routes may not be 2WD accessible. Routes are numbered from 200 to 299
<b>Class IV</b>	Administrative Access Road (Administrative Roads) - Routes intended for access to administrative developments or structures such as maintenance offices, employee quarters, or utility areas. These routes are accessible by 2WD vehicles. These routes may restrict access to the general public. Routes are numbered from 300 to 399.
<b>Class V</b>	Restricted Road (Administrative Roads) - Routes normally closed to the public, such as maintenance roads, service roads, patrol roads, and fire breaks. These routes may be open to the public for a short period of time for a special use, such as hunting access. These routes may not be 2WD accessible. Routes are numbered from 400 to 499.

A refuge road system contains those routes within or giving access to a refuge or other unit of the FWS that are administered by the FWS, or by the Service in cooperation with other agencies. The assignment of a functional classification (FC) to a refuge road is not based on traffic volumes or design speed, but on the intended use or function of that route



## DESCRIPTION OF RATING SYSTEM

Rating Data is collected on four different surface types: Asphalt, Concrete, Gravel, and Native. The Utah LTAP Center's Remaining Service Life (RSL) system is used for all surface types. The RSL system is based on the Strategic Highway Research Program's (SHRP) Distress Identification Manual.

### Asphalt Rating System

Data is collected on the following distresses and conditions:

- **Fatigue Cracking** - Interconnected cracks forming small irregular shapes.
- **Longitudinal Cracking** - Cracks running parallel with the roadway, in the direction of traffic.
- **Transverse Cracking** - Cracks perpendicular to the roadway, going across the lane or lanes.
- **Block Cracking** - Interconnected cracks forming large blocks.
- **Edge Cracking** - Cracks running along the edge of the pavement surface.
- **Patches** - Original surface repaired with new asphalt patch material.
- **Potholes** - Holes or depressions in the pavement.
- **Rutting** - surface depressions in the wheel paths.
- **Roughness** - Evenness of pavement for serviceability.
- **Drainage** - Ability of the road surface to drain water based on proper slope.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### Rating Index Formula

Fatigue, longitudinal, transverse, block, and edge cracking, along with patching and potholes are rated on a 0 - 9 scale (0 = no distress, 9 = maximum distress). The rating given is based on the extent and the severity of the distress. Rutting, roughness, and drainage are rated on a 0 - 3 scale (0 = excellent, 3 = poor). Each distress type has given Remaining Service Life (RSL) values (in years) based on the rating for that particular distress. The distress with the rating resulting in the lowest RSL value is considered to be the governing distress. That value is then assigned as the RSL of the road segment.

### Concrete Rating System

Data is collected on the following distresses and conditions:

- **Spalling of Joints** - Chipping, breaking, or cracking of slab edges
- **Joint Seal Damage** - Any damage or condition that enables materials or water to infiltrate into the joint from the surface.
- **Corner Breaks** - A portion of the slab separated by a crack that intersects the adjacent transverse and longitudinal joints, forming approximately a 45° angle to the direction.
- **Broken Slabs** - Faulting and/or cracking localized to individual slabs.



- **Faulting** – Difference in elevation across a crack or joint.
- **Longitudinal Cracking** – Cracks in the pavement running parallel to road.
- **Transverse Cracking** - Cracks in the pavement running perpendicular to the direction of traffic.
- **Patch Deterioration** – Faulting, settling, or cracking of previously placed patch
- **Map Cracking** – A series of cracks that extend only into the upper surface of the Slab

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### **Rating Index Formula**

The rating procedure for concrete pavement is the same as that for asphalt pavement described previously. Each of the distresses described above are rated on the same 0 – 9 scale. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

### **Gravel and Native Rating System**

Data is collected on the following distresses and conditions:

- **Cross Section (Crown)** - Roadway built so that the center is higher than the shoulder, to prevent water from pooling on roadway.
- **Roadside Drainage** - Roadside ditches and culverts to handle water flow and prevent pooling on the roadside.
- **Corrugations (Washboarding)** - Small trenches or holes developing perpendicular to the roadway.
- **Potholes** - Holes or depressions in the roadway.
- **Rutting** - Depressions running parallel with the roadway, in the wheelpaths.
- **Dust** - Amount of dust caused by traffic.
- **Loose Aggregate (Gravel Only)** - Loose gravel, typically piled up on the roadway edges or centerline.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### **Rating Index Formula**

The rating procedure for unpaved roads is the same as that for asphalt and concrete pavements described previously. Of the distresses described above, corrugations, potholes, rutting, and loose aggregate are rated on the same 0 – 9 scale previously mentioned. Cross section, roadside drainage, and dust are rated on the same 0 – 3 scale described for asphalt pavement. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.



## Condition Descriptions by Surface Type

The following definitions are used to describe pavement condition for the various surface types. These are general guidelines for condition indications.

### Asphalt

**Excellent** – Recently constructed or overlaid road where construction or overlay was performed correctly- No maintenance required. RSL = 19-20 years.

**Good** – Low extent longitudinal and transverse cracks. All cracks are 1/4" or less with little or no crack erosion. Patches are in good condition and applied correctly. Routine Maintenance recommended. RSL = 13-18 years.

**Fair** - Roads are in good structural condition with little or no fatigue cracking. Longitudinal, transverse, and edge cracking is at medium extent and severity. Block cracking is not extensive. Any patches are in good condition. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Road beginning to show signs of structural distress. Fatigue cracking is medium to high extent and medium severity. Cracking will be severe. Surface may have severe block cracking and show. Patches are in fair to poor condition. There is moderate distortion or rutting and occasional potholes. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Road is severely deteriorated. Signs of structural failure appear along with severe and extensive fatigue cracking, distortion, potholes, or extensive patches in poor condition. Reconstruction recommended. RSL = 0 years.

### Concrete

**Excellent** - New pavement. No maintenance required. RSL = 19-20 years

**Good** - First signs of transverse cracking, patch or repair, more extensive pop-outs, or scaling. Sealing or routine maintenance recommended. RSL = 13-18 years.

**Fair** – Pavement has joint or crack spalling, and/or faulting, along with cracking at corners with broken pieces. Any Patches are in fair condition and faulting is at a minimum. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Joints and cracks are open 1 inch, spalled, or patched. Faulting is more severe. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Most slabs have failed structurally, and faulting is severe. Reconstruction recommended. RSL = 0 years.11-9

The following table shows the relationship between RSL and condition.



SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Asphalt and Concrete Pavements)								
	FAILED	POOR		FAIR		GOOD		EXCELLENT
RSL Years	0	1-3	4-6	7-9	10-12	13-15	16-18	19-20

### Gravel and Native

**Note** - Native surfaces do not have a gravel layer.

**Excellent** - Newly constructed road that has been constructed properly with proper crown, drainage and gravel layer. Little or no distress. No maintenance recommended. RSL = 8-10 years.

**Good** - Crown, drainage provisions, and gravel layer are in good condition. Distress limited to traffic effects such as dust, loose aggregate, and low severity corrugations (wash boarding). RSL = 5-7 years.

**Fair** - Adequate drainage and crown through majority of roadway. Crown repair, ditch improvement may be necessary. Road has more severe corrugations and potholes. Preventative maintenance recommended. RSL = 3-4 years.

**Poor** - Travel at slow speeds is necessary. Additional gravel layer needed to carry traffic. Poor crown. Ditching is inadequate and rutting is extensive and severe. Rehabilitation recommended. RSL = 1-2 years.

**Failed** - Travel is difficult, and road may be closed at times. Rutting and Corrugations are very severe. Total Reconstruction of road is recommended. RSL = 0 years.

The following table shows the RSL values for gravel and native roads in terms of excellent, good, fair, poor, and failed condition.

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Gravel and Native Surfaces)					
	FAILED	POOR	FAIR	GOOD	EXCELLENT
RSL Years	0	1-2	3-4	5-7	8-10



## NATIVE PRIMITIVE/IMPROVED RATING SHEET

<u>Cross Section (Crown)*</u>			
Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

<u>Rutting</u>				
Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

<u>Roadside Drainage*</u>			
Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

<u>Potholes</u>				
Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

<u>Dust</u>			
Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

<u>Corrugations</u>				
Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 3"	1	2	3
	Med 3-6"	4	5	6
	High > 6"	7	8	9

\* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.



## GRAVEL RATING SHEET

### Cross Section (Crown)

Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

### Rutting

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

### Roadside Drainage

Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

### Potholes

Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

### Dust

Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

### Corrugations

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 2"	1	2	3
	Med 2-4"	4	5	6
	High > 4"	7	8	9

\* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.

### Loose Aggregate

Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9



# ASPHALT RATING SHEET

## Fatigue Cracking

Severity	Extent			
	No Defects	Low 1 crack WP	Med 2 cracks WP	High >30% length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Edge Cracking

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	0-6" from curb	1	2	3
	6-18" from curb	4	5	6
	> 18" from curb	7	8	9

## Longitudinal Cracking

Severity	Extent			
	No Defects	Low 1 crack full length	Med 2 cracks full length	High >2 cracks full length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Block Cracking

Severity	Extent (Length)			
	No Defects	Low > 15x15' squares	Med 15-10' squares	High <10x10' squares
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Transverse Cracking

Severity	Extent (ft between cracks)			
	No Defects	Low > 200'	Med 200-50'	High < 50'
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Utility Cuts

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Drainage/Roughness/Rutting

Severity	Condition		Description
	No Defects	0	Wide, deep ditches with no obstructions, smooth ride, no rutting, no potholes.
	Minor Defects	1	Drainage may be obstructed, < 1" rutting, minor roughness.
	Moderate Defects	2	Poor drainage, 1-2" rutting, noticeable roughness, potholes < 6" wide.
	Major Defects	3	No drainage; > 2" rutting; potholes 6-12" wide create roughness requiring reduced speeds.



# CONCRETE RATING SHEET

## Spalling of Joints

Extent (% joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low Spalls < 3"	1	2	3
	Med Spalls 3-6"	4	5	6
	High Spalls > 6"	7	8	9

## Broken Slabs

Extent (% slabs)				
No Defects	Low <5%	Med 5-15%	High >15%	
Severity	Low-no more than 3 pieces, no spalling/faulting	1	2	3
	Med-broken into >3 pieces, spalling/faulting <1/4"	4	5	6
	High-4 or more pieces, spalling/faulting >1/4"	7	8	9

## Transverse Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/4"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/4"	7	8	9

## Joint Seal Damage

Extent (%joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low <10% joint length	1	2	3
	Med 10-50% joint length	4	5	6
	High >50% joint length	7	8	9

## Faulting

Extent (Length)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low < 1/2"	1	2	3
	Med 1/2-1"	4	5	6
	High > 1"	7	8	9

## Patch Deterioration

Extent (Area)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low-no fault, no settle at perimeter	1	2	3
	Med-fault & settle <1/4" at perimeter	4	5	6
	High-fault & settle >1/4" at perimeter, cracked patch	7	8	9

## Corner Breaks

Extent (% of slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-corner cracks, no spalling or faulting	1	2	3
	Med-crack slightly spalled & faulted <1/4"	4	5	6
	High-crack highly spalled & faulted >1/4"	7	8	9

## Longitudinal Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/2"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/2"	7	8	9

## Map Cracks

Extent (Area)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-small connected cracks, no spalling	1	2	3
	Med-connected cracks, no spalling	4	5	6
	High-large connected cracks with surface spalling	7	8	9



# Deficiency Ratings With Associated Remaining Service Life

## Asphalt Rating Sheet

Fatigue Cracking		Edge Cracking		Transverse Cracking		Utility Cuts	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20	0	20
1	10	1	12	1	14	1	14
2	8	2	10	2	12	2	12
3	6	3	8	3	10	3	10
4	8	4	10	4	12	4	12
5	6	5	8	5	10	5	10
6	4	6	6	6	8	6	8
7	6	7	8	7	10	7	10
8	2	8	6	8	6	8	6
9	0	9	4	9	2	9	2

Longitudinal Cracking		Block Cracking		Drainage/Roughness/Rutting	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	14	1	12	1	16
2	12	2	10	2	10
3	10	3	8	3	4
4	12	4	10		
5	10	5	8		
6	8	6	6		
7	10	7	12		
8	8	8	6		
9	6	9	2		

## Concrete Rating Sheet

Spalling		Broken Slabs		Transverse Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	15	1	15	1	18
2	12	2	12	2	15
3	10	3	10	3	12
4	12	4	12	4	15
5	10	5	10	5	10
6	8	6	8	6	6
7	10	7	10	7	10
8	6	8	6	8	4
9	0	9	0	9	0

Joint Seal Damage		Faulting		Patch Deterioration	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	18
1	16	1	15	1	16
2	14	2	12	2	14
3	12	3	10	3	12
4	14	4	12	4	12
5	10	5	8	5	10
6	8	6	6	6	8
7	12	7	10	7	10
8	8	8	4	8	6
9	6	9	0	9	0

Corner Breaks		Longitudinal Cracks		Map Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	18	0	20	0	20
1	16	1	18	1	18
2	14	2	15	2	15
3	12	3	12	3	12
4	12	4	15	4	12
5	10	5	10	5	10
6	8	6	6	6	6
7	10	7	10	7	10
8	6	8	4	8	4
9	0	9	0	9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Asphalt & Concrete Roads)

RSL	FAILED 0	POOR 1 - 6	FAIR 7 - 12	GOOD 13 - 18	EXCELLENT 19 - 20
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# Deficiency Ratings With Associated Remaining Service Life

## Native Primitive Improved Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

## Gravel Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

Loose Aggregate	
Distress Rating	Remaining Service Life
0	10
1	9
2	8
3	7
4	8
5	7
6	6
7	5
8	3
9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Gravel & Native Roads)

RSL	FAILED	POOR	FAIR	GOOD	EXCELLENT
	0	1 - 2	3 - 4	5 - 7	8 - 10